

1 AMENDMENT TO THE CLAIMS

2 30. (Currently Amended) A waste liquid treatment system comprising the following:

3 A. a media matrix (1) comprised of at least one tube (20); ~~comprised of at least~~
4 one inner core (70) received into said at least one tube (20);

5 B. the media matrix (1) received into a media matrix container (250) having
6 wastewater inlet (350) and discharge means (400).

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8 31. (Currently Amended) A waste liquid treatment system of claim 30 further
9 comprising:

10 A. the media matrix (1) is comprised of a plurality of tubes (20) each sized to
11 receive at least one elongated inner core (70);

12 B. the at least one inner core (70) has a top (75), a bottom (80) and a length (85);

13 C. the tube (20) having a tube top (25), tube bottom (30) and tube length (35) and
14 a tube axis (37); the tube axis (37) centrally positioned from the tube top (25) to the tube
15 bottom (30) and extending throughout the tube length (35) of each tube (20);

16 D. the at least one inner core (70) having at least one vane (90);

17 E. the at least one inner core (70) having a central core element (95); the at least
18 one vane (90) extending from a central core element (95) where the central core element
19 (95) coincides with the tube axis (25).

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21 32. (Currently Amended) A waste liquid treatment system of claim 31 further
22 comprising:

23 A. the at least one inner core (70) having a plurality of vanes (90); the central
24 core element (95) of the at least one inner core (70) parallel with the central core element
25 (95) of other at least one inner core (70);

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1 B. the tube length (35) generally less than the inner core length (85).

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3 33. (Currently Amended) A waste liquid treatment system of claim 32 further
4 comprising:

5 A. each of the plurality of tubes (20) having an inner wall (140) where at least
6 one groove (150) is formed in the inner wall (140); said at least one groove (150) sized to
7 receive at least one vane (90);

8 B. the groove (150) comprising vane (90) restraining means securing the at least
9 one inner core (70) in a fixed position within said tube (20);

10 C. the tube (20) having an outer wall (190) having at least one fin (200)
11 extending outwardly therefrom.

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13 34. (Currently Amended) A waste liquid treatment system of claim 33 further
14 comprising:

15 A. the tube (20) receiving at least one inner core (70) may be positioned at any
16 location along the inner core length (85);

17 ~~B. the at least one inner core (70) having at least eight vanes (90).~~

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19 35. (Currently Amended) A waste liquid treatment system of claim 34 further
20 comprising:

21 A. at least one vane (90) of the plurality of at least one vanes (90) of each of the
22 at least one inner core (70) received into the at least one depression or at least one groove
23 (150) at a vane tip (98).

24 B. groove walls (155) extending from the inner wall (140) forming the at least
25 one depression or at least one groove (150); said at least one groove (150) comprising a
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1 vane tip (98) restraining means.

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3 36. (Previously Added) A waste liquid treatment system of claim 35 further comprising:

4 A. vane (90) restraining means by a friction fit between the vane tip (98) and
5 groove walls (155) when received into the groove (150) or by application of an adhesive
6 or a mechanical fixing means between the vane tip (98) and the groove walls (155);

7 B. at least two depressions or at least two grooves (150) are formed in the inner
8 wall (140) with each of said grooves (150) receiving at least one vane (90).

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10 37. (Currently Amended) A waste liquid treatment system of claim 36 further
11 comprising:

12 A. vanes (90) of the plurality of the at least one vanes (90) having a vane
13 surfaces (92);

14 B. each of the plurality of vanes each of the at least one vane (90) of each of the
15 at least one central core (70) extending from the central core element (9525) along the
16 length of said central core element (9525); the surface (92) covered with a biofilm (97);

17 C. the plurality of at least eight vanes (90) are spaced equidistant from an the
18 adjoining vane (90) and extend from the central core element (9525).

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20 38. (Previously Added) A waste liquid treatment system of claim 37 further comprising:

21 A. at least four fins (200) extending from said outer wall (190);

22 B. the fin (200) is generally elongated having a fin surface (210);

23 C. the plurality of tubes (20) contact adjacent tubes (20) at the respective tube
24 outer walls (190) at at least one contact point (195) where affixing means fix adjacent
25 tubes together and hence to fix the position of the plurality of tubes (20) within the media

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1 matrix (1).

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3 39. (Previously Added) A waste liquid treatment system of claim 37 further comprising:

4 A. contact point (195) affixing means including adhesives, mechanical fasteners
5 and other methods or devices;

6 B. at least fins 1...n extending outwardly from the outer wall (190);

7 C. at least one contact points (195) comprised of flattened portion of the outer
8 wall surface (195) extending from the tube top (25) to the tube bottom (30) parallel with
9 the tube axis (37).

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11 40. (Currently Amended) A waste liquid treatment system of claim 39 further
12 comprising:

13 A. said tubes (20) in the media matrix (1) ~~may be~~ alternatively or additionally
14 fixed in position by fin (200) affixing means employed at an intersection of fins (200) of
15 adjoining tubes (20).

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18 41. (Previously Added) A waste liquid treatment system of claim 40 further comprising:

19 A. the tube inner wall (140) having an inner wall surface (142), the tube outer
20 wall (190) having an outer wall surface (192); inner wall surface (142), outer wall surface
21 (192), vane surface (92) and fin surface (210) receives biofilm (97).

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23 42. (Currently Amended) A waste liquid treatment system of claim 41 further
24 comprising:

25 A. wastewater inlet (350) and discharge means (400) comprising pipes; the

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1 wastewater inlet (350) directs flow of wastewater into the media matrix (1); the discharge
2 pipes (400) discharges from the media matrix container (250);

3 B. the at least one inner core (70) having at least eight vanes (90).

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